

IN THE CLAIMS:

Please amend the claims as shown below, in which deleted terms are indicated with strikethrough and/or double brackets, and added terms are indicated with underscoring. The following listing of claims replaces all previous versions, and listings of claims in the application.

1. (Currently amended) A conveyance system, comprising:

a conveyance carriage assembly for carrying a workpiece thereon; and

a plurality of conveyance units ~~[[to]]~~ through which said conveyance carriage assembly is conveyed;

wherein said conveyance carriage assembly ~~[[has]]~~ comprises a plurality of driven members including a foremost driven member;

and said conveyance units are separable into individual units;

each of said individual units ~~having~~ comprising:

~~[[a]]~~ two substantially parallel rails ~~for~~ selectively and alternately guiding said conveyance carriage assembly in opposite directions, respectively; and

~~[[a]]~~ two drivers, wherein each of said rails has a respective one of said drivers associated therewith ~~said rail~~ for driving said conveyance carriage assembly through said driven members; and

wherein said system is configured so that during use, when the last one of said driven members is separated from a movable range of ~~[[said]]~~ a driver with which it is associated, at least the foremost one of said driven members is relayed to ~~[[said]]~~ a driver of ~~[[the]]~~ an adjacent unit ~~adjacent thereto~~ and said conveyance carriage assembly is substantially continuously conveyed.

2. [Canceled].

3. (Currently amended) A conveyance system according to claim [[2]] 1, wherein said units comprise three units including:

a horizontal conveyance unit for linearly conveying said conveyance carriage assembly;

a gradient conveyance unit for conveying said conveyance carriage assembly on an upward grade and/or a downward grade; and

a direction-changing unit for changing a conveyance direction of said conveyance carriage assembly;

wherein a plurality of types of said units are combined with each other.

4. (Previously presented) A conveyance system according to claim 1, wherein said driver comprises an annular chain which is circulatingly drivable through a sprocket; and

said driven members comprise driven sprockets held in mesh with said annular chain or a presser plate for pressing rollers of said annular chain.

5. (Previously presented) A conveyance system according to claim 1, wherein said rail is in the form of a plate which is elongate in a conveyance direction; and

said conveyance carriage assembly moves laterally of said rail, and carries the workpiece on a side of said rail.

6. (Currently amended) ~~A conveyance system according to claim 1~~

A conveyance system, comprising:

a conveyance carriage assembly for carrying a workpiece thereon; and

a plurality of conveyance units through which said conveyance carriage assembly is conveyed;

wherein said conveyance carriage assembly comprises a plurality of driven members

including a foremost driven member;

and said conveyance units are separable into individual units, each of said individual units comprising:

a rail for guiding said conveyance carriage assembly; and

a driver, associated with said rail for driving said conveyance carriage assembly through said driven members; and

wherein said system is configured so that during use, when the last one of said driven members is separated from a movable range of a driver with which it is associated, at least the foremost one of said driven members is relayed to a driver of an adjacent unit, and said conveyance carriage assembly is substantially continuously conveyed, wherein said conveyance units include:

a plurality of horizontal conveyance units for conveying said conveyance carriage assembly in a substantially horizontal direction; and

a gradient conveyance unit interconnecting two of said horizontal conveyance units;

wherein said gradient conveyance unit comprises:

a gradient conveyance drive sprocket disposed closely to an end of the gradient conveyance unit, said gradient conveyance drive sprocket being rotatable by said driver;

a gradient conveyance driven sprocket disposed closely to an opposite end of the gradient conveyance unit, said gradient conveyance driven sprocket being rotatable;

a gradient conveyance annular chain held in mesh with said gradient conveyance drive sprocket and said gradient conveyance driven sprocket, said gradient conveyance annular chain being circulatingly drivable; and

a gradient guide for supporting, from below, an upper portion of said gradient conveyance annular chain which imparts drive power to said conveyance carriage assembly and a lower portion of said gradient conveyance annular chain which is guided in a direction opposite to said upper portion, making said gradient conveyance annular chain upwardly convex in shape;

wherein said conveyance carriage assembly has a gradient conveyance driven sprocket positioned near a leading end of the conveyance carriage assembly in a conveyance direction and held in mesh with said gradient conveyance annular chain; and

wherein after said conveyance carriage assembly is pushed out from said horizontal conveyance unit, said driven sprocket is brought into mesh with said gradient conveyance annular chain, and said conveyance carriage assembly is conveyed by said gradient conveyance annular chain along the shape of said gradient guide.

7. (Previously presented) A conveyance system according to claim 6, wherein said conveyance carriage assembly comprises at least two conveyance carriages interconnected longitudinally by a vertically swingable or elastically deformable joint.

8. (Currently Amended) A conveyance system according to claim 6, wherein each of said horizontal conveyance units comprises:

a horizontal conveyance drive sprocket disposed closely to an end of the horizontal conveyance unit, said horizontal conveyance drive sprocket being rotatable by said driver;

a horizontal conveyance driven sprocket disposed closely to an opposite end of the horizontal conveyance unit, said horizontal conveyance driven sprocket being rotatable; and

a horizontal conveyance annular chain held in mesh with said horizontal conveyance drive sprocket and said horizontal conveyance driven sprocket, said horizontal conveyance annular chain being circulatingly drivable and being disposed in a position different from said gradient conveyance annular chain in a transverse direction of said horizontal conveyance unit;

wherein said conveyance carriage assembly has a push-out driven sprocket positioned closely to a rear end of the conveyance carriage assembly, said push-out driven sprocket being positioned above said horizontal conveyance annular chain when no external force is applied thereto; and

wherein as said conveyance carriage assembly moves, said driven sprocket is lowered

into mesh with said horizontal conveyance annular chain by a push-out cam plate in said horizontal conveyance unit.

9. (Previously presented) conveyance system according to claim 8, wherein said driven sprocket is lowered by:

 a force-bearing member for directly bearing a pressing force from said push-out cam plate; and

 a resilient member compressible in interlinked relation to said force-bearing member.

10. (Currently Amended) A conveyance system according to claim 6, wherein said conveyance carriage assembly comprises:

 a lowering driven sprocket disposed closely to a rear end of the conveyance carriage assembly, said lowering driven sprocket being positioned above said gradient conveyance annular chain when no external force is applied thereto;

 wherein as said conveyance carriage assembly moves, said driven sprocket is lowered into mesh with said gradient conveyance annular chain by a lowering cam plate disposed in a downgrade region of said gradient conveyance unit.

11. (Previously presented) A conveyance system according to claim 10, wherein said driven sprocket is lowered by:

 a force-bearing member for directly bearing a pressing force from said lowering cam plate; and

 a resilient member compressible in interlinked relation to said force-bearing member.

12. (Previously presented) A conveyance system according to claim 1, further comprising:

 a drive gear rotatable by a rotational drive source;

 a first driven gear held in mesh with said drive gear, said first driven gear being rotatable

by rotation transmitted from said drive gear;

a second driven gear held in mesh with said drive gear, said second driven gear being rotatable by rotation transmitted from said drive gear in a direction opposite to said first driven gear;

a first rotational shaft as a rotational shaft of said first driven gear;

a second rotational shaft as a rotational shaft of said second driven gear;

a first circulative driver for being circulatively drivable in response to rotation of said first rotational shaft; and

a second circulative driver for being circulatively drivable in a direction opposite to said first circulative driver in response to rotation of said second rotational shaft;

wherein said conveyance carriage assembly is conveyed by said first circulative driver and/or said second circulative driver.

13. (Previously presented) A conveyance system according to claim 12, wherein each of said drive gear, said first driven gear, and said second driven gear comprises a bevel gear, and said first rotational shaft and said second rotational shaft are coaxial with each other and perpendicular to the axis of said drive gear.

14. (Previously presented) A conveyance system according to claim 12, further comprising:

a first inner bearing by which an end of said first rotational shaft is rotatably supported, and a second inner bearing by which an end of said second rotational shaft is supported, said first inner bearing and said second inner bearing being disposed between said first driven gear and said second driven gear; and

a first outer bearing by which an end of said first rotational shaft is rotatably supported, and a second outer bearing by which an end of said second rotational shaft is supported, said first outer bearing and said second outer bearing being disposed on sides of said first driven gear and said second driven gear which are opposite to confronting faces thereof.

15. (Previously presented) A conveyance system according to claim 12, wherein said first circulative driver is driven by a first drive sprocket mounted on said first rotational shaft;

said second circulative driver is driven by a second drive sprocket mounted on said second rotational shaft; and

said first circulative driver and said second circulative driver comprise annular chains, respectively, and are circulatingly drivable by rotatable driven sprockets.

16. (Currently amended) A conveyance system according to claim 1, wherein said conveyance carriage assembly comprises:

a retaining mechanism for retaining the workpiece;

a retaining member operating mechanism for operating a retaining member of said retaining mechanism;

a resilient member for pressing said retaining member in a direction opposite to the direction in which said retaining member is operated by said retaining member operating mechanism;

a main body supporting said retaining mechanism and said retaining member operating mechanism; and

a roller mounted on said main body and engaging said rail;

wherein said retaining member operating mechanism operates said retaining member through operation of a drive mechanism disposed closely to said rail, and is displaced while being guided along said rail.

17. (Previously presented) A conveyance system according to claim 16, wherein said retaining mechanism comprises:

a clamp mechanism having a clamp operated by said retaining member operating mechanism; and

a holding mechanism having a set of plate members including at least one movable plate, for holding a portion of said workpiece which is different from the portion thereof which is gripped by said clamp mechanism, with said set of plate members;

wherein said clamp and said movable plate are displaced by said retaining member operating mechanism to hold or release said workpiece.

18. (Previously presented) A conveyance system according to claim 16, wherein an engaging member engageable by a hook of a first lock mechanism disposed closely to said rail when said retaining member operating mechanism operates said retaining member through operation of said drive mechanism, is mounted on said main body.

19. (Previously presented) A conveyance system according to claim 16, further comprising:
a pocket for supporting an end of said workpiece inserted therein.

20. (Previously presented) A conveyance system according to claim 19, wherein said pocket, said clamp mechanism, and said holding mechanism are mounted on said main body successively upwardly in the order named, and an elongate member as said workpiece is conveyed in an upstanding state.

21. (Previously presented) A conveyance system according to claim 20, wherein the elongate member as said workpiece comprises a connecting rod for an internal combustion engine.

22. (Currently amended) ~~A conveyance system according to claim 1~~

A conveyance system, comprising:
a conveyance carriage assembly for carrying a workpiece thereon; and
a plurality of conveyance units through which said conveyance carriage assembly is
conveyed;

wherein said conveyance carriage assembly comprises a plurality of driven members including a foremost driven member;

and said conveyance units are separable into individual units, each of said individual units comprising:

a rail for guiding said conveyance carriage assembly; and

a driver, associated with said rail for driving said conveyance carriage assembly through said driven members; and

wherein said system is configured so that during use, when the last one of said driven members is separated from a movable range of a driver with which it is associated, at least the foremost one of said driven members is relayed to a driver of an adjacent unit, and said conveyance carriage assembly is substantially continuously conveyed;

said conveyance system further comprising:

a conveyance carriage assembly stopping mechanism for stopping the conveyance carriage assembly for carrying and conveying the workpiece;

said conveyance carriage assembly stopping mechanism comprising:

a stopping engaging member mounted on said conveyance carriage assembly;

a first arm and a second arm which extend in a conveyance direction of said conveyance carriage assembly and have respective shanks having pivotally supported ends;

a displacing mechanism for alternately and selectively displacing said first arm and said second arm toward and away from each other; and

an entry path defined between said first arm and said second arm for said stopping engaging member to enter, said entry path having a narrower portion having a width which is progressively smaller in a direction of travel of said stopping engaging member, and a wider portion which is wider than said narrower portion;

wherein said conveyance carriage assembly is decelerated when said first arm and said second arm slide against said stopping engaging member in said narrower portion; and

said conveyance carriage assembly which has entered said wider portion after said

narrower portion is spread by said stopping engaging member which presses said first arm and said second arm, is stopped by said first arm and said second arm which engage said stopping engaging member.

23. (Previously presented) A conveyance system according to claim 22, wherein said first arm and said second arm have a support which supports said stopping engaging member.

24. (Previously presented) A conveyance system according to claim 22, further comprising:

a second lock mechanism for positioning and fixing said conveyance carriage assembly which is stopped, said second lock mechanism having a stopper engaging member for engaging a stopper mounted on said conveyance carriage assembly.

25. (Previously presented) A conveyance system according to claim 22, wherein said stopping engaging member comprises a rotatable cylinder.

26. (Previously presented) A conveyance system according to claim 22, wherein said stopping engaging member doubles as a guided member which is guided by a direction-changing unit which is interposed between a first conveyance section for conveying said conveyance carriage assembly in one direction and a second conveyance section for conveying said conveyance carriage assembly in a direction different from said one direction.

27. (Previously presented) A conveyance system according to claim 26, wherein each of conveyance carriages of said conveyance carriage assembly has two stopping engaging members, each of said stopping engaging members doubling as a guided member which is guided by said direction-changing unit which interconnects a forward path as said first conveyance section and a return path as said second conveyance section for guiding said